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ABSTRACT

On the basis of evidence showing the effect of failure on males and mixed sex groups and on the basis of Horner's theory regarding the effect of success on females, it was hypothesized in this study that both success and failure feedback would disrupt female goal setting, and lead to less positive affect. Seventy-five female undergraduates were assigned to an experimental program in which they received failure, success, or neutral feedback with regard to their performance on a digit symbol task. Contrary to prediction, success subjects set more realistic goals than control subjects and did not indicate less positive affect than controls. Also, failure subjects set less realistic goals, felt less confident about reading their goals, and felt worse about their performance than did success subjects. These findings indicate that reactions to failure, but not reactions to success, interfered with female aspiration behavior. Rather than continuing to search out evidence for fear of success, it is concluded that greater attention should be given to factors, specific to women, that are associated with failure and fears of failure. Possible factors include lower expectations for occupational success and lack of defensiveness against negative feelings aroused by failure. (Author/AM)

Success and failure: Factors in female aspiration behavior

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Abstract

Seventy-five female undergraduates were assigned to an experimental condition in which they received failure, success, or neutral feedback regarding their performance on a digit symbol task. All subjects set goals for future performance, indicated their subjective probability of success in reaching stated goals, and indicated their feelings about their performance and about the experimental task. On the basis of evidence of the effect of failure on males and mixed-sex groups, and on the basis of Horner's theory regarding the effect of success on females, it was hypothesized that both success and failure feedback would disrupt female goal-setting, and lead to less positive affect. Contrary to prediction, success subjects set more realistic goals than control subjects ($p < .05$), and did not indicate less positive affect than controls. Also, failure subjects set less realistic goals ($p < .05$), felt less confident about reaching their goals ($p < .05$), and felt worse about their performance ($p < .01$) than did success subjects. These findings indicate that reactions to failure, but not reactions to success, interfere with female aspiration behavior.

Success and failure: Factors in female aspiration behavior

The effects of failure experiences and fear of failure on aspiration behavior have received considerable attention. In general, studies have indicated that past failure and the fear of failure disrupt goal setting.

Much of this research involves an aspiration measure, the discrepancy score (d score), which is defined as the difference between the subject's goal for a future trial and the subject's performance on a preceding trial. Groups of subjects who have experienced more failure in an achievement area have tended to produce more variable d scores when attempting to achieve in that area (Sears, 1940; Stake, 1973). Also, groups of subjects designated higher in fear of failure on the basis of a projective measure have tended to set more variable d scores (Birney, Burdick, & Teevan, 1969). The greater variability of d scores among failure subjects means that failure subjects have tended to set either unrealistically high or unrealistically low goals in relation to past performance while success subjects have set moderate, realistic goals in relation to past performance.

An aspiration measure related to the d score is the probability of success associated with the task a subject chooses to undertake. A number of investigators have reported that subjects high in fear of failure have selected tasks for which the subjective probability of success was either low or high and that subjects low in fear of failure have selected tasks for which the subjective probability of success was moderate (Brody, 1963; Feather, 1963; Hancock & Teevan, 1964; Moulton, 1965).

The finding that failure subjects select tasks with high or low probabilities of success is in accordance with the finding that failure subjects set high or low goals in relation to past performance. In both cases, the aspiration behavior of failure subjects reveals a defensive strategy. Failure subjects defend against the threat of continued failure by setting a goal or

choosing a task which they believe to be very easy or very difficult. In the first case, risk is minimized because the subject is very likely to meet or exceed his goal. In the second case, risk is minimized because the subject has chosen a very difficult goal which he cannot be expected to attain.

In focusing on the effects of failure on goal-setting, most investigators have included either mixed groups of males and females or groups of males only. Few have considered sex as an independent variable and none have focused specifically on female aspiration behavior. There are at least two reasons for the lack of research on female aspiration behavior. Perhaps most important, issues related to achievement have traditionally been considered male issues, suitable for the understanding of masculine behavior. In addition, under some experimental conditions females have not responded to experimenters' efforts to arouse achievement motivation (e.g. Veroff, Atkinson, & Wilcox, 1953). It is probable that this problem has discouraged workers in the area from focusing on female achievement motivation.

Since no study has focused specifically on the effect of failure on female aspiration behavior, one of the goals of this study was to test the effect of a failure condition on several measures of female aspiration behavior. In the absence of information regarding the effects of failure on female subjects, expectations were based on the findings from mixed and male groups. Thus, it was predicted that failure experience would disrupt female aspiration behavior and would result in unrealistically high and low goal setting. Also, although there is no direct evidence regarding female affect associated with failure, it seemed reasonable to predict that women receiving failure feedback would state less positive feelings regarding the experimental task and their scores on the task than would women not receiving feedback.

Fear of failure has been a main issue in the achievement motivation research for many years. Recently, Horner (1970) has introduced a new variable, fear of

success, which she considers to be an additional motive important for the understanding of the achievement of women. Horner has proposed that women are fearful of competing because they believe successful competitive behavior will result in loss of femininity and social rejection. Although this hypothesis has not been demonstrated empirically (Zuckerman & Wheeler, 1975), Horner asserts that fear of success leads to the inhibition of female achievement motivation in competitive settings.

The fear of success hypothesis leads to some specific predictions regarding the effect of success on female aspiration behavior. If female achievement motivation is inhibited by threat of successful competition, then it would be expected that women who are given feedback that they are competing successfully would not set goals which are commensurate with their abilities. Instead, they would produce unrealistically low d scores. In addition, women threatened by success feedback would be expected to feel less positive about the experimental task and their performance on the task than would women receiving no feedback. A second goal of this study was to test these predictions of the effect of success feedback on female aspiration behavior.

In summary, this study was designed to test the effect of a failure condition and the effect of a success condition on female aspiration behavior. On the basis of research evidence regarding the effect of failure and on Horner's theory regarding the effect of success, it was expected that both failure and success feedback would disrupt female goal setting. The most realistic goal setting was expected to occur under neutral conditions in which neither failure nor success feedback was provided. Affect associated with the experimental task was expected to be less positive among women receiving failure and success feedback than among women receiving no feedback.

Method

Subjects

Seventy-five female students of an introductory psychology class received class credit for volunteering to serve as subjects.

Material

Experimental Task. Two modified forms of the Digit Symbol subtest of the Wechsler Adult Intelligence Scale (WAIS) were constructed. Digit symbol tests were selected as the experimental task for two reasons: 1) Subjects were expected to be ego-involved in the tests because they are related to intelligence testing, and 2) subjects could realistically expect to improve their performance on the second digit symbol test.

Measures of Realistic Goal Setting. Variability in d scores and subjective probabilities of success are somewhat vague and indirect measures of realistic goal setting. Hence, in addition to these measures, error in prediction was included as an additional measure of realistic goal setting. Error in prediction was defined as the absolute difference between d score and actual performance improvement. Hence, underestimation and overestimation were equally reflected in the error in prediction measure.

Measure of Subjective Probability. A scale was constructed to measure subjects' subjective probabilities of reaching their stated goals. The scale was constructed with markings to indicate probabilities to the nearest tenth from 0/10 to 10/10. Underneath the end and midpoints of the line were the anchor phrases "no chance", "50-50 chance, very uncertain", and "sure thing".

Measures of Affect. A scale was constructed to measure subjects' liking for the experimental task. The end and mid anchor points of the seven-point liking scale were "disliked very much", "neutral, didn't like or dislike", and "liked very much".

Also, a scale was constructed to measure subjects' feelings about how well they had done on the experimental task. The end and mid anchor points of the seven-point satisfaction scale were "very badly", "neutral, didn't feel bad or good", and "very good".

Measure of Ego-Involvement. A scale was constructed to measure the

importance to the subject that she do well at the experimental task. The end and mid anchor points of the seven-point scale were "very important", "somewhat important", and "not at all important". This measure was included to determine if the experimental procedures were effective in arousing the subjects' motives to achieve at the task.

Procedures

Each subject was tested individually by one of two female experimenters.

Subjects in all groups were first given these instructions:

This study is an investigation of goal setting on a task which requires visual-motor ability. The task is taken from the Wechsler Adult Intelligence Scale--the most often used intelligence test for adults. Have you taken the Wechsler Intelligence test before? (Only subjects who had not taken the WAIS were included beyond this point in order to emphasize the relationship between the experimental task and intelligence testing).

All subjects who had not taken the WAIS were then given standard instructions for the Digit Symbol subtest and were administered the digit symbol test, Form A.

Following the trial, the experimenter counted the number of digits completed in full view of the subject, and gave the subject accurate feedback of her performance.

All subjects were then told:

Now you will take a different form of this same test. You will again have 90 seconds, just as you had before. You got _____ symbols completed the first time. I'd like you to tell me how many you expect to complete this next time.

At this point control subjects set their goals and experimental subjects received contrived feedback of their relative performance. All experimental subjects were told:

To help you in setting your goal, I can give you the average performance

of college students of your age. To look up your norm, I'll need to have your age. (The experimenter then consulted a folder which contained an official-looking list of figures).

Failure subjects were then given this feedback:

Hmmm, not too good, You were 15.2 points below the average for college students your age. Well, you haven't done too well so far.

Success subjects were given this feedback:

Hmmm, very good. You were 15.2 points above the average for college students your age. You've done really well.

Experimental subjects set their goals after receiving the contrived feedback.

After setting their goals, all subjects were shown the scale of subjective probability and were asked to indicate what they felt the chances were that they would reach their goal.

Subjects were then given the digit symbol test, Form B. Following the test, subjects were asked to indicate their feelings about the digit symbol task on the scales for affect and ego-involvement.

Immediately following these procedures, experimental subjects were questioned to determine if they had believed the feedback. Two subjects were eliminated because they had not. This reduced the number of subjects to 73.

Finally, subjects were debriefed. Failure subjects showed obvious relief in learning the feedback was false, which further suggests that the failure feedback was credible to the subjects.

In designing this study, an important consideration was the assignment of subjects to feedback groups. If subjects had been assigned to groups randomly, then some subjects would have received feedback contrary to their previous experience of success and failure at similar visual-motor tasks. This problem of unusual feedback would have led to problems in the interpretation of subjects' responses to feedback. For example, subjects with past success experience at

visual-motor tasks would be expected to respond differently to failure feedback than would subjects with past failure experience.

To eliminate this problem of incongruent feedback, subjects were assigned to the failure, success, and control groups on the basis of their actual performance on Trial 1. (Norms for college women were established prior to these procedures by administering the digit symbol to a group of pilot subjects.) Subjects performing in the upper third for college women were designated success subjects, subjects performing in the middle third were designated control subjects, and subjects performing in the lower third were designated failure subjects. The six subjects who achieved maximum or near maximum performance on the first form were eliminated because of the low ceiling on goals set by these subjects. Therefore, 67 subjects were included in the analyses: 20 success subjects, 20 failure subjects, and 27 control subjects.

Results

The means and standard deviations of ego-involvement scores are presented in Table 1. The means indicate that the average feeling in all groups was

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Insert Table 1 about here

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that doing well on the task was more than "somewhat important". A one-way analysis of variance was performed on the ego-involvement scores to determine whether level of ego-involvement differed by group. There was no significant difference between groups; feedback condition did not effect level of ego-involvement.

The means and standard deviations for subject affect scores are also presented in Table 1. The mean liking score for success subjects was higher than the mean liking score for control subjects, and the mean liking score for failure subjects was lower. However, an analysis of variance on liking scores revealed no significant differences between groups.

In response to the question, "How did you feel about your scores on this test?", success subjects indicated greater satisfaction with their performance than control subjects and failure subjects indicated less satisfaction than control subjects. Because the sample distribution shapes did not allow for the assumptions required for a parametric procedure, the effect of feedback on satisfaction was tested by the Kruskal-Wallis One-Way Analysis of Variance by Ranks procedure. The analysis revealed a significant difference between groups ($p < .01$). Therefore, the hypothesis of less positive affect among failure feedback subjects was partially supported, and the hypothesis of less positive affect among success feedback subjects was not supported.

One purpose of this study was to test the effect of failure and success feedback on the ability to set realistic goals. Variability in d scores and subjective probabilities of success were two measures of realistic goal setting. The standard deviations of d scores and probability estimates appear in Table 2.

Insert Table 2 about here

Differences between simple variances were not significant for either variable.

The more direct and more sensitive measure of realistic goal setting was the error in prediction measure. Error in prediction was defined as the absolute difference between d score and actual performance improvement. The means and standard deviations of errors for each group appear in Table 2. Because the error scores of failure subjects were positively skewed, a square root transformation was performed. The summary table for the analysis of variance of transformed error scores appears in Table 3. The effect of feedback

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Insert Table 3 about here

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on error in prediction was significant ($p < .05$). Newman-Keuls comparisons between means revealed a significant difference between the control and success

groups ($p < .05$) and between the failure and success groups ($p < .05$). There was no difference between the failure and control groups. Thus, although groups did not differ in variability of d scores, they did differ in accuracy of goal set. On the basis of the error in prediction measure, success subjects were more realistic goal setters than control subjects and failure subjects were not less realistic. This finding is contrary to the prediction of less realistic goals among failure and success subjects.

As a further check on the realistic goal setting of groups, the correlation between d scores and performance improvement was calculated for each group. Within the control group this correlation was .35 (ns), within the success group it was .44 ($p < .05$), and within the failure group it was .02 (ns). Thus, only among subjects receiving success feedback was a significant relationship found between goal set and performance attained.

The means of d scores and probability estimates appear in Table 2. Differences between d score means were not significant; groups did not differ in the amount of performance improvement expected. However, a one-way analysis of variance revealed a significant effect of feedback condition on the sample means of probability estimates (see Table 4). Although the mean probability

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Insert Table 4 about here

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estimates were within the moderate range for all groups, Newman-Keuls comparisons indicated that both success subjects ($p < .05$) and control subjects ($p < .05$) gave significantly higher probability estimates than did failure subjects. No significant difference was found between success and control subjects. Thus, although groups did not differ in amount of performance improvement expected, success and control groups felt more confident about reaching their goals than did failure subjects.

In summary, all groups were equally ego-involved in the task and gave comparable performance improvement estimates. Failure subjects felt less confident about reaching their goals and felt worse about their performance than did control or success subjects. Success subjects were more accurate in setting their goals and felt better about their performance than did control and failure subjects.

Discussion

Subjects were assigned to feedback condition on the basis of performance on Trial 1. This means that the group receiving success feedback was, in fact, a more talented group at this type of visual-motor skill and that the failure group was a less talented group. Therefore, it should be kept in mind that the effects of success feedback reported here can be generalized only to those who are more talented in the area in which feedback is being given, and the effects of failure feedback can be generalized only to those less talented in the area. However, in a practical sense, these are the generalizations of greatest interest. It is most important to determine the effects of success feedback on those women who actually do well at the task in question, and most important to determine the effects of failure feedback on women who actually do poorly at the task in question.

All subject groups indicated a moderate amount of ego-involvement in the experimental task, and differences between groups were not significant. Hence, differences between groups that were obtained cannot be attributed to a lack of ego-involvement or to differences in ego-involvement among groups.

One aim of this study was to test the effect of failure on female goal setting. Unlike the findings from male groups, the failure subjects in this study did not produce more variable d scores or more variable probability estimates of reaching stated goals. That is, these failure subjects did not employ the defensive strategy of high and low goal setting found in male failure groups. Does this mean that female subjects in this study were less defensive

in their reactions to failure than male subjects have been? The affect measures and probability estimates obtained from the failure subjects in this study suggest that this is the case. The failure subjects indicated less positive affect than success and control subjects in response to the question, "How do you feel about your scores on this test?" Also, even though they predicted amounts of performance improvement comparable to the other two groups, they indicated less confidence in their ability to meet their goals. These findings suggest that, in contrast to the defensive strategy of male subjects, these female subjects allowed themselves to experience negative feelings associated with failure. If females in general are less able to defend against feelings associated with failure experiences, this finding would have important implications for sex differences in aspiration and achievement behavior. For example, greater sensitivity to failure would help to explain the lower goal-setting typically found among female subjects (Stake, in press). A study is needed that includes measures of affect and confidence for both males and females within the same design, so that possible differential effects of failure experience on male and female aspiration behavior can be explored more fully.

A second aim of this study was to test the effect of success on female goal setting. On the basis of the fear of success hypothesis, subjects experiencing success were predicted to set less realistic goals and to state less positive affect than subjects in a neutral setting. None of the results supported these predictions. The success condition was associated with more accurate, realistic goal setting. Success subjects made fewer errors in prediction than control subjects, and were the only subjects to set goals which correlated significantly with future performance. Also, there were no significant differences in measures of affect between control and success subjects. The mean liking and satisfaction scores of success subjects were, in fact, slightly higher than the scores of control subjects.

Fear of success has been proposed as a motive which inhibits achievement motivation. According to the hypothesis, success should be associated with unrealistically low goals and negative affect. Yet, the success subjects in this study appear to be the "best" goal setters. Other investigators have made predictions about female performance on the basis of the fear of success hypothesis (Garske, 1975; Heilbrun, Kleemeier, & Piccola, 1974; Sorrentino & Short, 1974; Stake, in press). The results of these studies also failed to provide support for the fear of success hypothesis. These studies, as well as the present study, cast serious doubt on the utility of the theory as a predictor of female achievement behavior.

In comparing failure and success subjects, failure subjects set less realistic goals, felt less confident about reaching their goals, and felt worse about their performance. These results lead to the conclusion that it is not success, but failure which disrupts female aspiration behavior. Possibly these findings have an implication for female occupational goal setting. Women tend to set lower occupational goals than males, goals that do not accurately reflect their abilities to achieve. These women live in a culture in which female occupational achievement is considered unlikely to occur and unusual when it does occur. Because of their lack of knowledge of or experience with other women who achieve, these women may feel that their own chances for achieving high occupational goals are very slim. Thus, the tendency of women to set lower occupational goals may reflect women's expectations that they could not succeed, not their fears that they will succeed.

This suggestion is consistent with the finding of no sex difference in fear of success among college students (Levine & Crumrine, 1975; Hoffman, 1974; Brown, Jennings & Vanik, 1974). If, in fact, there is no sex difference in fear of success, then fear of success cannot explain the lower occupational goal setting of women, and we must look to other explanations for sex differences

in occupational goal setting. Lower expectations for success is one such explanation.

Viewed as a clinical phenomenon, fear of success is probably a quite valid and useful construct. That is, fear of success has a place in the understanding of certain individual problems in motivation. However, as a theory of normal female achievement behavior, and, particularly, as an explanation of sex differences in achievement striving, the hypothesis of fear of success has not received empirical support, and thus has not been useful in the general understanding of female aspiration and achievement behavior. The results of the present study suggest that it is not fear of success, but fear of failure, which is an important factor blocking female goal setting. Yet, while many studies of fear of success have recently appeared, there has been little interest in the fears of failure experienced by women. Rather than continuing to search out evidence for fear of success, it seems that greater attention should be given to factors specific to women that are associated with failure and fears of failure. Possible factors include lower expectations for occupational success and lack of defensiveness against negative feelings aroused by failure.

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Footnotes

Portions of this study were presented at Rocky Mountain Psychological Association, Phoenix, May 1976.

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TABLE 1

Means and Standard Deviations of Subject Ego-Involvement and Affect Scores

Scale	Control	Success	Failure
Ego-involvement[a]	3.889	3.795	3.070
	(1.528)	(1.359)	(1.795)
Liking[b]	5.167	5.400	5.030
	(1.256)	(1.199)	(1.592)
Satisfaction	4.944	5.565	3.580
	(1.121)	(.903)	(1.961)

Note. Standard deviations appear in parentheses.

[a]Lower scores indicate greater ego-involvement.

[b]Higher scores indicate greater liking and satisfaction.

TABLE 2

Means and Standard Deviations of D-Scores,

Error in Prediction, and Probability Estimates

	Control	Success	Failure
D Scores	4.56	6.20	5.75
	(8.68)	(5.62)	(6.60)
Probability Estimates	.756	.785	.665
	(.134)	(.166)	(.163)
Error in Prediction	8.78	4.65	8.50
	(5.395)	(3.216)	(7.082)

TABLE 3

The Analysis of Variance of Transformed Error in Prediction Scores

Source	df	MS	F
Feedback group	2	3.0820	3.53*
Error	64	.8718	

*p < .05.

TABLE 4

The Analysis of Variance of Subjects' Probability Estimates

Source	df	MS	F
Feedback group	2	.7952	3.40*
Error	64	.2340	

*$p < .05$